

ENGINALL

Product tested **Shell Rotella T Heavy Duty SAE 15W-40 (Diesel motor oil)**

Test type **Falex Pin in Vee Block**

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(in PSI)	Straight oil no additive				Oil with additive				Variance				
	(min:sec)		(lbs./in.)	%	(min:sec)		(lbs./in.)	%			(lbs./in.)		
Direct Pressure	Run time	Time to next pressure mark	Torque	change	Run time	Time to next pressure mark	Torque	change	Run time difference	Variance	torque difference	Variance	
Break-in start	9:20:00 AM		15.0		9:43:00 AM		12.0				-3.0	-20.00%	
300	5.00		15.0	0.00%	5.00		12.0	0.00%			-3.0	-20.00%	
500	5.00		17.0	13.33%	5.00		12.5	4.17%			-4.5	-26.47%	
750	0.07	0.07	25.0	47.06% (1)	0.08	0.08	15.0	20.00%	0.01	-12.50%	10.0	40.00%	
1,000					0.26	0.18	20.0	33.33%					
1,250					0.42	0.16	35.0	75.00%					
1,500					0.55	0.13	45.0	28.57%					
1,750					1.13	0.18	47.0	4.44%					
2,000					1.31	0.18	48.0	2.13%					
2,250					1.50	0.19	52.0	8.33%					
2,500					2.06	0.16	54.0	3.85%					
2,750					2.26	0.20	60.0	11.11%					
3,000					2.42	0.16	62.0	3.33%					
3,250					2.56	0.14	64.0	3.23%					
3,500					3.16	0.20	66.0	3.13%					
3,750					3.32	0.16	68.0	3.03%					
4,000					3.51	0.19	69.0	1.47%					
4,250					4.01	0.10	70.0	1.45%					
4,500					4.20	0.19	71.0	1.43% (2)					
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End test	0.00		25.0	47.06%	2.06		52.0	20.00%					
					4.20		71.0	468.00%					
Ave. increase per second			1.14				0.23						

(1) Rotella T 15W-40 without additive failed after reaching 750 lbs. of direct pressure.

(2) Rotella T 15W-40 with additive was still running at the 4,500 PSI direct pressure mark.

Conclusion

After break-in, at a direct pressure of 750 PSI, the torque for Rotella T without additive increased to 25.0 lbs./in. (a 47.06% increase) and failed 7 seconds after break-in. At the same direct pressure, the torque for Rotella T with the additive increased to 15.0 lbs./in.(a 20.00% increase). Based on this information, Rotella T with the additive had a 40.00% reduction in torque at a direct pressure of 750 PSI.

Rotella T with the additive was able to continue and achieve the maximum direct pressure the test allows (4,500 PSI) in a period of 4 minutes and 20 seconds. In analyzing the results, it appears that after 1,500 PSI direct pressure, the additive provided significantly more benefit.